AMENDMENTS TO THE CLAIMS

Claims 1-34. (Canceled)

35. (New) A substrate holding mechanism comprising:

a mounting flange;

a support member secured to said mounting flange; and

a retainer ring secured to said mounting flange and arranged around an outer periphery of said support member,

such that when a substrate is to be polished the substrate is held on a lower side of said support member and is surrounded by said retainer ring, and is pressed against a polishing surface,

wherein said mounting flange is provided with a flow passage contiguous with at least said retainer ring for allowing a temperature-controlled gas to be supplied through said flow passage so as to cool said mounting flange, said support member and said retainer ring, and

wherein said substrate holding mechanism further comprises switching means for selectively supplying the temperature-controlled gas and a cleaning liquid to said flow passage.

36. (New) The substrate holding mechanism according to claim 35, wherein

said retainer ring includes a plurality of through-holes communicating with said flow passage so as to spray temperature-controlled gas flowing through said flow passage onto the polishing surface, with the polishing surface being on a polishing table.

37. (New) The substrate holding mechanism according to claim 35, further comprising:

a pressurizing chamber between said mounting flange and said support member,

wherein a pressure fluid is to be supplied to said pressurizing chamber so as to press said support member,

wherein a pressure of the temperature-controlled gas to be supplied through said flow passage is lower than a pressure of the pressure fluid to be supplied to said pressurizing chamber.

38. (New) A substrate polishing apparatus comprising:

a substrate holding mechanism according to claim 35; and

a polishing table having a polishing surface,

such that when a substrate is to be polished the substrate is held by said substrate holding mechanism and pressed against said polishing surface while moving said substrate holding mechanism and said polishing surface relative to one another.

39. (New) A substrate holding mechanism comprising:

a mounting flange;

a support member secured to said mounting flange; and

a retainer ring secured to said mounting flange and arranged around an outer periphery of said support member,

such that when a substrate is to be polished the substrate is held on a lower side of said support member and is surrounded by said retainer ring, and is pressed against a polishing surface,

wherein said mounting flange is provided with a flow passage contiguous with at least said retainer ring for allowing a temperature-controlled moist gas to be supplied through said flow passage so as to cool said mounting flange, said support member and said retainer ring.

40. (New) The substrate holding mechanism according to claim 39, wherein

said retainer ring includes a plurality of through-holes communicating with said flow passage so as to spray temperature-controlled moist gas flowing through said flow passage onto the polishing surface, with the polishing surface being on a polishing table.

41. (New) The substrate holding mechanism according to claim 39,further comprising:

a pressurizing chamber between said mounting flange and said support member,

wherein a pressure fluid is to be supplied to said pressurizing chamber so as to press said support member,

wherein a pressure of the temperature-controlled moist gas to be supplied through said flow passage is lower than a pressure of the pressure fluid to be supplied to said pressurizing chamber.

42. (New) A substrate polishing apparatus comprising:

a substrate holding mechanism according to claim 39; and

a polishing table having a polishing surface,

such that when a substrate is to be polished the substrate is held by said substrate holding mechanism and pressed against said polishing surface while moving said substrate holding mechanism and said polishing surface relative to one another.

43. (New) A substrate holding mechanism comprising:

a mounting flange;

a support member secured to said mounting flange; and

a retainer ring secured to said mounting flange and arranged around an outer periphery of said support member,

such that when a substrate is to be polished the substrate is held on a lower side of said support member and is surrounded by said retainer ring, and is pressed against a polishing surface,

wherein said mounting flange is provided with a flow passage contiguous with at least said retainer ring for allowing a temperature-controlled gas to be supplied through said flow passage so as to cool said mounting flange, said support member and said retainer ring, and

wherein said substrate holding mechanism further comprises switching structure for selectively supplying the temperature-controlled gas and a cleaning liquid to said flow passage.

44. (New) The substrate holding mechanism according to claim 43, wherein said retainer ring includes a plurality of through-holes communicating with said flow passage so as to spray temperature-controlled gas flowing through said flow passage onto the polishing surface, with the polishing surface being on a polishing table.

45. (New) The substrate holding mechanism according to claim 43, further comprising:

a pressurizing chamber between said mounting flange and said support member,

wherein a pressure fluid is to be supplied to said pressurizing chamber so as to press said support member,

wherein a pressure of the temperature-controlled gas to be supplied through said flow passage is lower than a pressure of the pressure fluid to be supplied to said pressurizing chamber.

46. (New) A substrate polishing apparatus comprising:

a substrate holding mechanism according to claim 43; and

a polishing table having a polishing surface,

such that when a substrate is to be polished the substrate is held by said substrate holding mechanism and pressed against said polishing surface while moving said substrate holding mechanism and said polishing surface relative to one another.